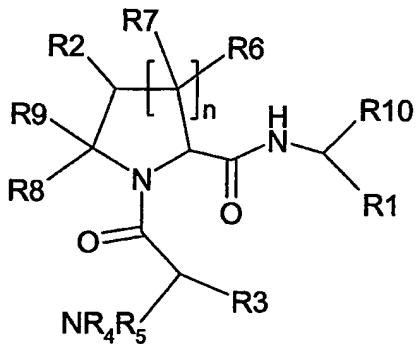


## CLAIMS

1. A compound having the general structure (I) or (II) as follows :

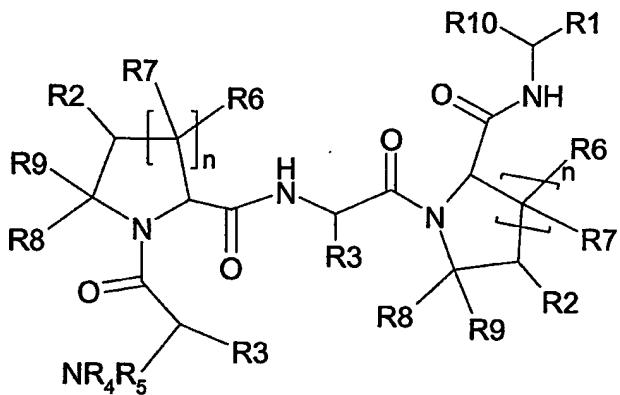
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(I)

or

10



(II)

wherein :

R1 represents the side chain of an amino acid or an amino acid derivative, preferably of hydrophobic nature, an alkyl, alkenyl, or alkynyl group having from 1 to 10 carbon atoms, including CH<sub>2</sub>CH<sub>3</sub> and CH<sub>2</sub>CF<sub>3</sub> ;

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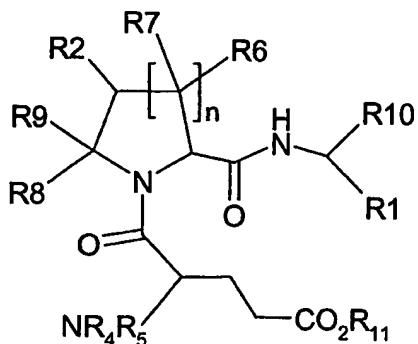
R2, identical or different, represents a hydrogen atom, an alkyl group having from 1 to 10 carbon atoms, a hydroxyl function, an alkoxy group, or an (C<sub>2</sub>-14)aryloxy group, -R2 may also represent a carbonyl group (=O) ;

20

R3, identical or different, represents the side chain of an amino acid or an amino acid derivative, preferably of hydrophobic nature, an alkyl, alkenyl, or alkynyl group having from 1 to 10 carbon atoms, or a, substituted or not, (C<sub>2</sub>-14)aryl or (C<sub>2</sub>-

- 14) aralkyl group, the aryl moiety thereof being optionally interrupted by at least one heteroatom ;
- R4 represents a hydrogen atom, an alkyl, alkenyl, or alkynyl group having from 1 to 10 carbon atoms ;
- 5 R5 represents a protecting group for the amine function ;
- R6 and R7 are the same or different and each represents a hydrogen atom or an, linear, branched, or cyclic, alkyl, alkenyl, or alkynyl group having from 1 to 10 carbon atoms or a, substituted or not, (C<sub>2</sub>-14)aryl or (C<sub>2</sub>-14)aralkyl group, the aryl moiety thereof being optionally interrupted with at least one heteroatom ;
- 10 R8 and R9 are the same or different and each represents a hydrogen atom or an, linear, branched, or cyclic, alkyl, alkenyl, or alkynyl group having from 1 to 10 carbon atoms or a, substituted or not, (C<sub>2</sub>-14)aryl or (C<sub>2</sub>-14)aralkyl group, the aryl moiety thereof being optionally interrupted with at least one heteroatom ;
- R10 represents an aldehyde (-CHO), an acid group (-COOH), a sulfonic acid (-SO<sub>2</sub>OH), -COCOOH group, a radical selected in the group consisting of : -COR, -COOR, -CONRR', -COCOOR, -SO<sub>2</sub>NRR' (a sulfonamide group), -CONHCOR, -COCONRR', -CONHSO<sub>2</sub>R, -CHOHCOR, -CHOHCOOR, -CHOHCON-RR', R and R', identical or different, represent an hydrogen atom, a hydroxyl radical, a linear, branched or cyclic alkyl, alkene or alkyne group having from 1 to 10 carbon atoms,
- 15 an alkoxy group, an amine group or a, substituted or not, (C<sub>2</sub>-14)aryl, (C<sub>2</sub>-14)aralkyl, or (C<sub>2</sub>-14)aralkoxy group, the aryl moiety thereof being optionally interrupted with at least one heteroatom ;
- n is 1 or 2 ;
- their tautomers, optical and geometrical isomers, racemates, salts, hydrates and
- 20 mixtures thereof.

2. A compound according to claim 1, wherein the compound corresponds to the following general formula (III) :



(III)

wherein :

5      R1, R2, R4, R5, R6, R7, R8, R9, R10 and n are as defined above and R11  
represents a hydrogen atom, an alkyl group having from 1 to 10 carbon atoms  
inclusive or a carboxy protecting group ;  
their tautomers, optical and geometrical isomers, racemates, salts, hydrates and  
mixtures thereof.

10     3. A compound according to claim 2, wherein :

R1 represents an alkyl group having from 1 to 10 carbon atoms inclusive or the  
side chain of an amino acid or an amino acid derivative, including CH<sub>2</sub>-CH<sub>3</sub> and  
CH<sub>2</sub>CF<sub>3</sub>;

15     R2 represents a hydroxyl group, an alkoxy group having from 1 to 10 carbon  
atoms, or -R2 may also represent a carbonyl group (=O) ;

R4 represents a hydrogen atom ;

R5 represents an amine protecting group ;

20     R6 and R7 are the same or different and each represents a hydrogen atom, a  
linear or branched alkyl group having from 1 to 10 carbon atoms or a cycloalkyl  
group having from 1 to 10 carbon atoms, including a cyclohexyl derivative ;

R8 and R9 are the same or different and each represents a hydrogen atom or a  
linear or branched alkyl group having from 1 to 10 carbon atoms inclusive ;

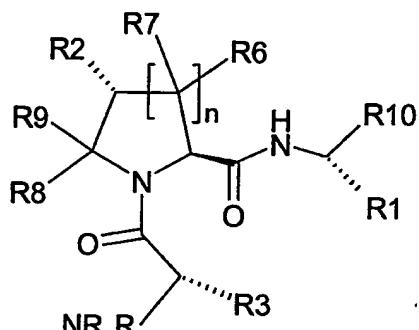
R10 represents an acid group, an ester group, an alkanoyl group, a keto-acid, a  
keto-ester, a keto-amide or a  $\alpha$ -hydroxy-keto derivative ;

25     R11 represents a hydrogen atom, an alkyl group having from 1 to 10 carbon atoms  
inclusive or a carboxy protecting group ; and

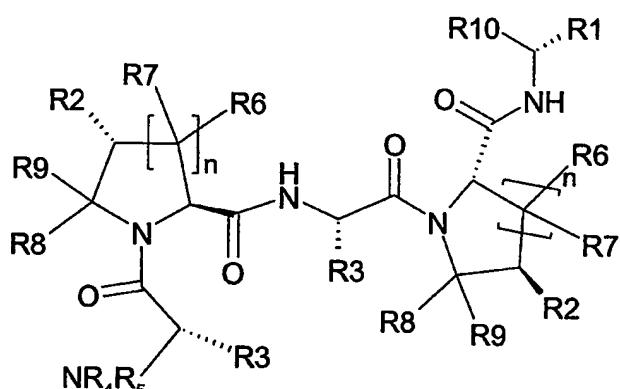
n is 1 or 2 ;

their tautomers, optical and geometrical isomers, racemates, salts, hydrates and mixtures thereof.

4. A compound according to one of the preceding claims, wherein the compound  
5 has the following formulae (Ia), (IIa) or (IIIa) :

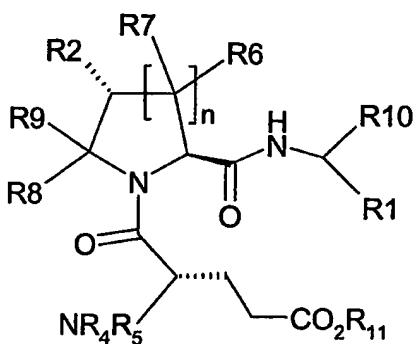


(Ia)



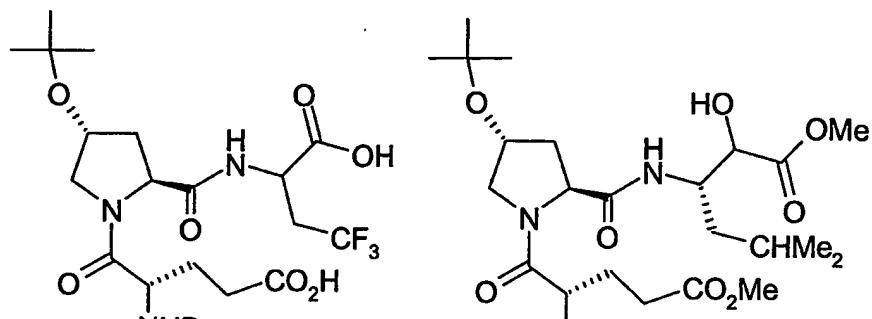
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(IIa)



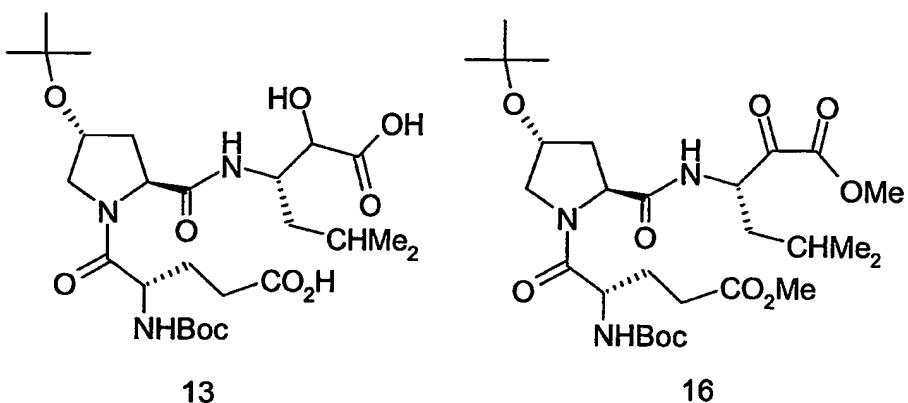
## (IIIa)

5. Compounds according to one of the preceding claims, wherein the amino acid side chain corresponds to any side chain of the naturally occurring (L form) or synthesized (L or D form) aminoacids (in particular alpha-aminoacids and aminocyclopropanoic acid), or derivative thereof, optionally substituted.
10. 6. Compounds according to the preceding claim, wherein the amino acid side chain is selected in the group consisting of -CH<sub>3</sub>, -CH(CH<sub>3</sub>)<sub>2</sub>, -CH<sub>2</sub>-CH(CH<sub>3</sub>)<sub>2</sub>, -CH(CH<sub>3</sub>)C<sub>2</sub>H<sub>5</sub>, H, -CH<sub>2</sub>OH, -CH<sub>2</sub>CH<sub>3</sub>, -CH(OH)CH<sub>3</sub>, -CH<sub>2</sub>SH, -CH<sub>2</sub>CF<sub>3</sub>, -(CH<sub>2</sub>)<sub>2</sub>-S-CH<sub>3</sub>, -CH<sub>2</sub>CH<sub>2</sub>CF<sub>3</sub>, -CH<sub>3</sub>C<sub>2</sub>H<sub>5</sub>, -CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>, -CH<sub>2</sub>-C<sub>6</sub>H<sub>4</sub>(OH), -CH<sub>2</sub>CONH<sub>2</sub>, -(CH<sub>2</sub>)<sub>2</sub>CONH<sub>2</sub>, -CH<sub>2</sub>COOH, -(CH<sub>2</sub>)<sub>2</sub>COOH, -(CH<sub>2</sub>)<sub>4</sub>NH<sub>2</sub>, -(CH<sub>2</sub>)<sub>3</sub>NHC(NH<sub>2</sub>)<sub>2</sub>, -CH<sub>2</sub>CH=CH and C<sub>6</sub>H<sub>5</sub>.
15. 7. Compounds according to one of the preceding claims, wherein R<sub>5</sub> stands for acetyl, benzyloxycarbonyl (Cbz) or t-butyloxycarbonyl (Boc) groups ; and/or R<sub>1</sub> stands for -CH<sub>2</sub>-CH<sub>3</sub>, -CH<sub>2</sub>-CF<sub>3</sub>, -CH<sub>2</sub>-CH<sub>2</sub>-CF<sub>3</sub>, -CH<sub>2</sub>CHCH<sub>2</sub> or -CH<sub>2</sub>-CHMe<sub>2</sub>; and/or R<sub>2</sub> stands for t-butyloxy ; and/or R<sub>3</sub> stands for -(CH<sub>2</sub>)<sub>2</sub>COOH, -CH(CH<sub>3</sub>)<sub>2</sub>, or -(CH<sub>2</sub>)<sub>2</sub>COOCH<sub>3</sub> ; and/or R<sub>10</sub> is acid, -CHOHCOR, with R is OH or an alkoxy group (preferably methoxy or ethoxy), keto-acid, keto-ester (preferably -COCOOMe, -COCOOEt or COCOOBn), keto-amide (preferably COCONHMe, COCONHET or COCONHBn) ; and/or R<sub>4</sub> is H ; and/or R<sub>6</sub> is H ; and/or R<sub>7</sub> is H ; and/or R<sub>8</sub> is H ; and/or R<sub>9</sub> is H; and/or R<sub>10</sub> is H and/or n = 1.
20. 8. A compound of formula (I) or (II) as defined in claim 1, which is selected in the group consisting of compounds of formula (I).
25. 9. A compound of formula (I) as defined in claim 1, which is selected in the group consisting of :



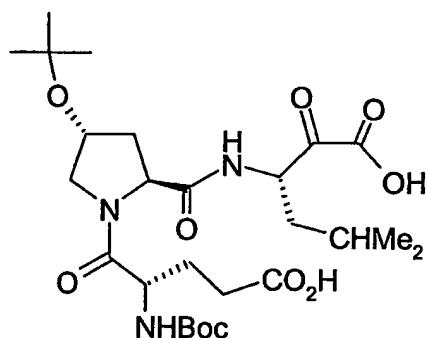
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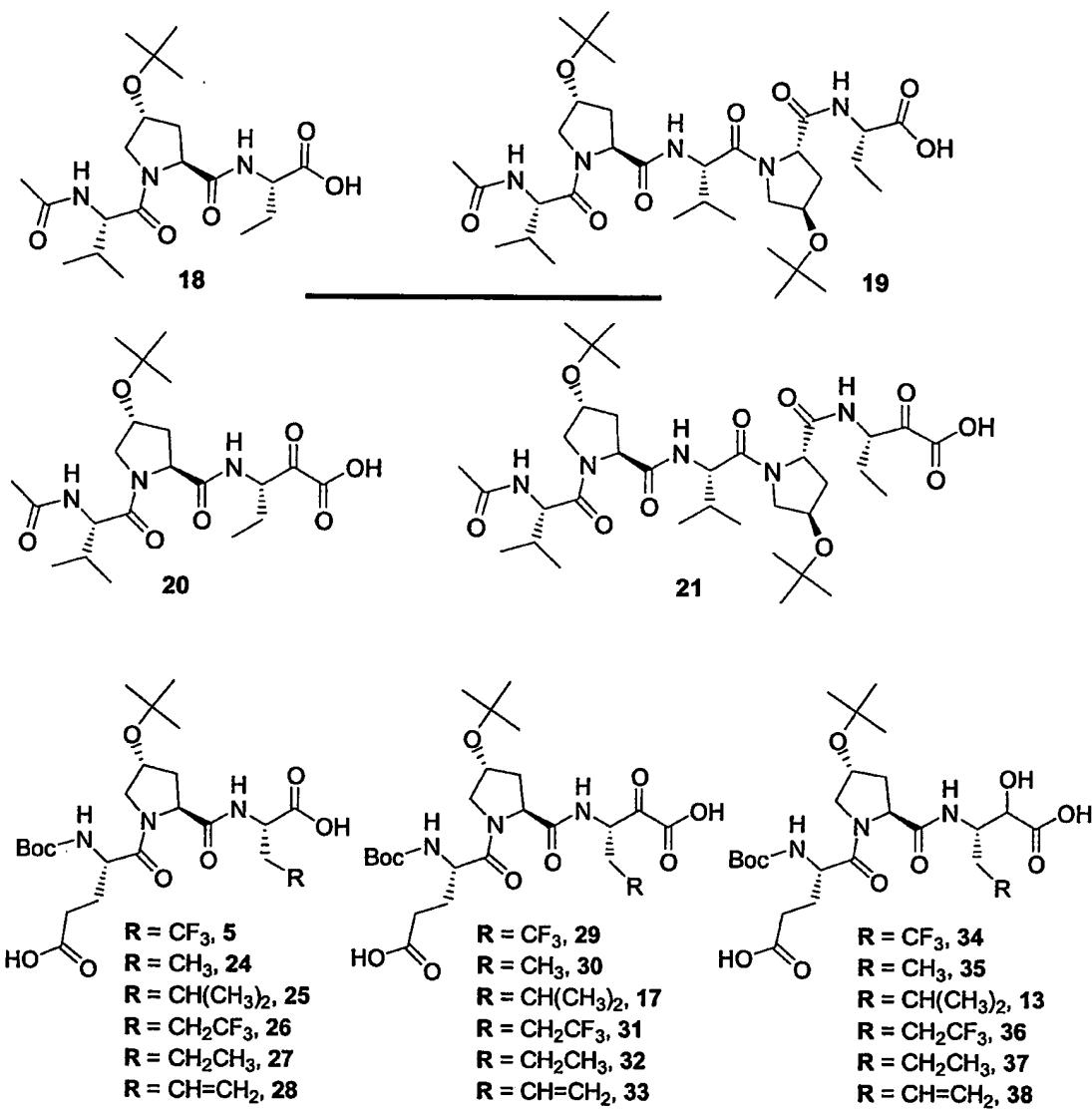
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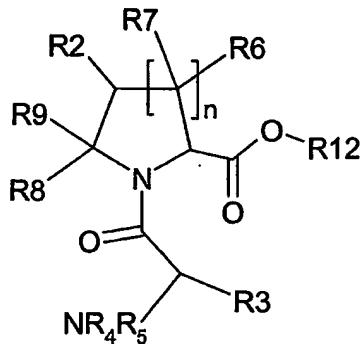


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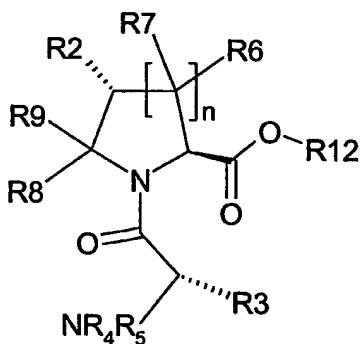
10. A compound corresponding to the following formula (V) :



(V)

5       wherein R2, R3, R4, R5, R6, R7, R8, and R9 are as defined in one of the preceding claims and R12 represents a hydrogen atom, an alkyl group (in particular, methyl, ethyl or t-butyl), alkenyl (allyl), an aralkyl (for instance, benzyl) or a cycloalkyl group; and n is 1 or 2 ;  
10      their tautomers, optical and geometrical isomers, racemates, salts, hydrates and mixtures thereof.

11. A compound according to the preceding claim, wherein it presents the following formula (Va) :

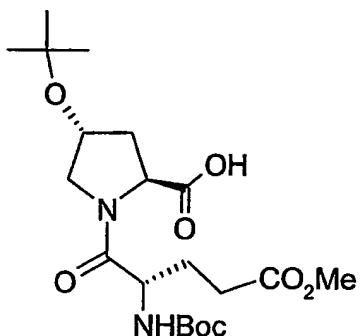


(Va)

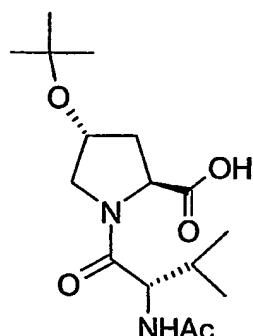
15      12. A compound according to claim 10 or 11, wherein it corresponds to compounds of formula (V) wherein R6, R7, R8 and R9, independently from each other, represents a hydrogen atom, an alkyl, an alkoxy group, or a cycloalkyl group, and preferably a hydrogen atom.  
20

13. A compound according to the preceding claim which has one of the following formulae:

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10 14. A compound according to one of claims 10-13, useful as an intermediate compound to prepare a compound of formula (I) or (II) as defined in claims 1-9 or as an active pharmaceutical ingredient, such as an antiviral agent (antiviral HCV agent).

15 15. A pharmaceutical composition comprising at least one compound as defined in any of the preceding claims and a pharmaceutically acceptable vehicle or support.

16. A pharmaceutical composition according to the preceding claim, said composition further comprising at least one immunomodulatory agent, other

antiviral agent, other inhibitor of hepatitis C protease; inhibitor of other targets in the HCV life cycle, or combinations thereof.

- 5        17. A pharmaceutical composition according to claim 15 or 16, useful for treating a disease related to an infection by a virus (preferably flavivirus, such as dengue virus, yellow fever virus, West Nile fever virus, or HCV), bacteria or pathogen dependent upon a serine protease for proliferation
- 10      18. A pharmaceutical composition according to claim 15 or 16, useful for treating HCV infection and the like.
- 15      19. A pharmaceutical composition according to claim 15 or 16, useful for treating hepatitis C virus infection and complications thereof, in particular chronic hepatitis, cirrhosis or hepatocellular carcinoma and extrahepatic manifestation.
- 20      20. Use of an effective amount of at least one compound of formula (I), (II), (III) or (V) as defined in any of the claims 1-13 for the preparation of pharmaceutical composition intended for the treatment of a disease associated with an infection by a virus (preferably flavivirus, such as dengue virus, yellow fever virus, West Nile fever virus or HCV), bacteria or pathogen dependent upon a serine protease for proliferation.
- 25      21. Use of an effective amount of at least one compound of formula (I), (II) or (III) as defined in any of the claims 1-13 for the preparation of pharmaceutical composition intended for the treatment of a disease associated with HCV infection.
- 30      22. A method of evaluating the modulation properties of test compounds towards NS3 serine protease, particularly HCV NS3 serine protease, said method implementing *in vitro* primary cultures of human hepatocytes and compounds as defined in any of the claims 1-13.
23. A method for screening and/or characterizing compounds that present antiviral activity, in particular antiviral HCV activity, by implementing *in vitro* primary

cultures of human hepatocytes and compounds as defined in any of the claims 1-13.

24. A method according to the preceding claim, said method comprising the  
5 following steps :

- c) contacting a test compound with the *in vitro* primary cultures of human hepatocytes described herein in presence of HCV or active part thereof, and
- d) determining the antiviral activity of the test compound in comparison with  
10 the antiviral activity of one of the compounds as defined in any one of claims 1-13.

25. Use of at least one compound as defined in any of the preceding claims 1-13 as an agent to treat or prevent viral contamination of materials.

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